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Policy options and actions for expediting progress in implementation: mining

Report of the Secretary-General

Summary

A number of significant changes have taken place in the mining sector since the World Summit on Sustainable Development in 2002. Progress has been achieved on transparency and governance of the sector. Many companies have embraced progressive voluntary guidelines and principles as a framework for their operations, while pursuing resource efficiency improvements. However, significant gaps remain. Many countries could enhance the contribution of their mineral wealth to their national economies. Steps remain to be taken towards increased transparency and disclosure from governments to citizens on mining activities and the revenues they generate. Respect of human rights, land rights and livelihoods of local and indigenous communities, environmental and social impacts of mining activities, and more generally relations among governments, companies and citizens are areas where further progress is needed. In all this, addressing inadequate capacity in national governments is critical. The international community can help countries make the most of their mineral wealth through technical cooperation, the exchange of good practices, and the pursuit of initiatives on transparency.

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I. Introduction

1. At its eighteenth session, the review session of the fourth implementation cycle, 2010-2011, the Commission on Sustainable Development conducted an evaluation of progress achieved in the selected cluster of issues of mining, transport, waste, chemicals and sustainable consumption and production, as described in Agenda 21, the Programme for the Further Implementation of Agenda 21 and the Johannesburg Plan of Implementation.[1] The Commission identified constraints and obstacles, as well as new challenges and opportunities, with regard to implementation in the selected thematic cluster.

2. At its nineteenth session, the policy session of the current implementation cycle, the Commission will take decisions on policy options and practical measures to expedite implementation in the selected cluster of issues. The session will be preceded by an Intergovernmental Preparatory Meeting, at which a draft negotiating document will be prepared for consideration by the Commission.

3. The present report is a contribution to the discussion to be held at the Intergovernmental Preparatory Meeting on issues related to mining. The report benefited from inputs received from the United Nations Environment Programme (UNEP), the United Nations Industrial Development Organization and the Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development.

4. For the purposes of this report, mining is defined as the economic activity dedicated to the production of minerals and metals, including exploration, extraction and processing of the minerals. Oil and gas are excluded from the scope of the report, having been considered by the Commission on Sustainable Development during its fourteenth and fifteenth sessions under the theme of "energy".

II. Controlling the need for metals and minerals extraction

5. Worldwide consumption of mined commodities has increased steadily in recent years, a trend that is expected to continue, as a result of strong demand in fast-growing developing countries. Although material intensities have declined in countries of the Organization for Economic Cooperation and Development (OECD) — more economic value is being created using relatively less material inputs — the overall (absolute) use of raw materials is not declining.[2]

6. At the same time, the extraction and processing of minerals imposes environmental and social costs. Several factors contribute to the environmental and social impacts of mining. With regard to the extraction of industrial minerals and metals, the first one is the "size" of mining as an economic activity, which relates to the demand for minerals and metals as inputs in the production system. The second one is the environmental impacts of specific extraction techniques, and more broadly the way extractive projects are managed on the ground.

7. Regarding the former, the link between industrial metals and minerals extraction and the demand for industrial metals and minerals as inputs to the

[1] See E/2010/29-E/CN.17/2010/15.

[2] See *OECD Environmental Outlook to 2030* (Paris, 2008).

production process is affected by: (a) the extent of recycling that takes place; (b) material efficiency, that is, the quantity of metals needed to produce one unit of product; and (c) material substitutions in the production process, whereby metals are replaced by other components. Efforts to reduce adverse impacts of mining should contemplate actions on these three fronts, in particular within the context of actions taken to achieve more sustainable production and consumption patterns. The promotion of recycling activities can also create or sustain employment, as those activities are labour-intensive, especially in developing countries.

8. By contrast, the demand for diamonds and gemstones, and to some extent gold, is largely determined by individual consumers. Given this link and the large environmental and social impacts of extracting artisanal gold and diamond mining overall, a number of proposals have been made by non-governmental organizations (NGOs) and other stakeholders to:

(a) Limit the end demand for these mineral products by directly addressing consumers and alerting them on the impacts of mining;

(b) Rationalize the use of existing stocks above ground by discouraging stockpiling and encouraging recycling;

(c) Promote third-party certification schemes that address the environmental and social issues associated with the mining of gold and precious stones.

9. At the macroeconomic level, prices of minerals and metals do not fully reflect the life cycle of environmental and social costs of mining activities. This results in socially inefficiently high use of metals and minerals in the production system and high environmental and social impacts, as well as in low incentives for mining companies to adopt cleaner production systems. The fact that some environmental and social costs are not incurred by producing firms also affects the incentives to recycle, through the relative costs of production of recycled and virgin raw metals.

10. A first area for consideration is whether the component of mineral prices that relates to royalties and other taxes paid by extracting companies reflects a fair compensation to the countries in which minerals are extracted for the loss of their natural assets. If this loss is not adequately compensated, prices are too low, and minerals extraction effectively becomes a transfer of wealth from producing countries to users of the extracted minerals. A second area for consideration is to examine direct and implicit subsidies to mining resulting from the tax and investment regimes applying to the industry, with a view to ensuring that those subsidies effectively contribute to sustainable development goals.

11. Options to better reflect externalities created by mining activities in the production costs faced by firms can be grouped into three broad areas: enacting and enforcing environmental and social regulations; devising legal and financial provisions for mine closure and rehabilitation; and devising measures to cover the environmental and social costs of accidents, such as leakages, overspill of containment ponds and failure of tailing dams. Clear liability provisions and mandatory mine closure and monitoring plans help ensure that the cost of operation more fully reflects the impacts of mining activities. One option for funding rehabilitation activities on abandoned sites is the imposition of levies on the mining industry. For instance, in the United States of America, the Surface Mining Control and Reclamation Act of 1977 established an Abandoned Mine Land Fund, which is

financed from levies on coal extraction, to pay for the clean-up of abandoned surface coal mines.

12. In many low-income countries, the recycling of metals is already at high levels, often based on hand sorting. Some countries have implemented differentiated sectoral policies that have an impact on the reuse and recycling of metals (for example, the directives on restriction of hazardous substances and on waste electrical and electronic equipment adopted by the European Union). Extended producer responsibility requirements, such as the end of life vehicles directive adopted by the European Union have also altered the behaviour of manufacturers and created post-consumer recycling systems that operate separately from the broader scrap market.

13. At the national level, promoting or mandating greater use of design for reuse and recycling in sectors that currently use a significant portion of minerals and metals produced, for example automobiles, buildings and infrastructure, can be achieved in different ways, through adequate provisions in building codes, third-party certification systems and public procurement. Governments can also encourage the private and public sectors to use the full potential of industrial ecology, where waste from parts of the industrial system are used as inputs by other industrial activities, by supporting the creation of decentralized waste markets (for example, through electronic platforms).

14. Many countries have used proactive measures to further increase reuse and recycle minerals and metals. These include:

(a) Production of geographically referenced inventories for the main metals, accounting for the current stocks embedded in infrastructure, buildings, landfills, household equipment and other sources;

(b) Development of curricula targeting the creation of specialized experts and contractors in metals and minerals reuse and recycling activities;

(c) Conduct of economic and feasibility studies for developing recycling systems infrastructure, including collection points and sorting and processing facilities;

(d) Keeping high-value recyclables out of landfills by banning land-filling of end of life vehicles, domestic appliances, electronics and other high-metal content goods;

(e) Requiring, when appropriate, separation of valuable recyclables and processing by shredding, and encouraging the setting up of shredding and segregation plants at landfills;

(f) Ensuring that local policies and regulations support and promote reuse and recycle activities in specific sectors, for example, buildings and construction;

(g) Incorporating reuse and recycling language in requests for proposals and other public contract specifications.

III. Strengthening the contribution of mining to national economies

15. As recorded in the summary by the Chair of the discussions of the Commission at its eighteenth session, there is a need to root the mining sector in the long-term development imperatives of national economies and to create linkages with these economies to reinforce the sector's contribution to sustainable development. Maximizing the contribution of mineral wealth to the national economy involves a number of stages and involves no uniform recipe; instead, choices adapted to countries' specific circumstances have to be made regarding each stage of the process.

A. Large-scale mining

16. In many countries, substantial mineral reserves remain underexplored or underexploited. Reasons for this include lack of data and information, lack of investment in the sector and lack of infrastructure needed for the development of major projects. A necessary first step is the development of adequate knowledge bases for different types of mineral resources that countries may have through surveying and mapping.

17. At the stage of allocation of exploration and exploitation rights, the country's interest is to get the best possible price for the mineral wealth that will be extracted. As demonstrated in several countries, it is possible to clearly separate exploration rights from exploitation rights, with the objective of ensuring competition for exploitation rights among several companies. The asymmetry of information that often exists between authorities in charge of allocating mining rights and companies, with the latter being better informed about the real amount and value of mineral deposits, may be overcome by using open bidding, since companies compete for deposits based on similar technical capacities. Open bidding has recently been chosen as the process for re-allocating expired concession rights in several African countries.

18. The share of the extracted wealth accruing to the State depends on factors such as the legal and regulatory framework applying to mining (for example, mining codes); the flexibility mechanisms built-in investment contracts to deal with fluctuations in mineral prices; taxation and royalty regimes; provisions for royalty calculation and collection; and local economic content provisions, such as shared equity or targets for local employment content within and around the mining project. Countries have applied a range of tax and royalty schemes for the mining industry. In practice, the actual collection of revenues is affected by a number of factors.[3] In a number of cases, governments are shareholders in mining ventures, for example, diamond miner Debswana (50 per cent owned by the Government of Botswana) and Williamson Diamonds (25 per cent owned by the Government of the United Republic of Tanzania).

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[3] It is estimated that between 1990-2001 the Chilean State-owned miner Codelco paid $10,659 million in taxes, while the private companies paid $1,638 million, despite their share of production being 25 per cent greater.

Source: Elva Bova, "The implications of mine ownership for the management of the boom: a comparative analysis of Zambia and Chile", Working Paper No. 2009/13, Swiss National Centre for Competence in Research.

19. Beyond employment and other direct economic impacts of mining operations, creating linkages between mining and the rest of the economies is critical for development. Without an integrated approach, there are real risks that mining operations operate as enclaves, with few spillovers to the rest of the economy. An approach used in Mozambique, Liberia and other countries is that of growth or development corridors, where planned mining development is integrated within broader spatial planning that aims to develop locally suited economic activities (such as agriculture, forestry, small-scale mining) by taking full advantage of the infrastructure created specifically for the needs of mining projects. For example, roads, railway lines, electricity generation facilities and port facilities can be built with additional capacity to allow other activities to use them or communities to benefit from them. Lessons learned from experience show that the best way to configure such links is before mining contracts are signed. Provisions relating to over-dimensioning of infrastructure can be added in concession bids, with companies competing on this dimension.

20. Managing the revenues from mining for maximal development impact is the next critical step. Countries endowed with natural resources have an interest in devising sound macroeconomic and institutional frameworks to manage the rents and other revenues from these resources. In the domain of mining activities, relevant areas of concern relate to: (a) avoiding the "Dutch disease"; (b) using revenues to stabilize the economy; and (c) using the revenues for maximum development impact.

21. Risks of Dutch disease are now well understood, and a number of countries have taken measures to prevent it. In some countries, such as Botswana, Chile and Norway, the totality or a portion of the revenues from minerals is set aside in special funds, the uses of which are defined by law. Depending on a country's priorities and economy, the following strategies may be effective, alone or in combination with one another: investments in education and infrastructure to increase the long-term competitiveness of the manufacturing sector; isolation of a part of the revenues from mining from the rest of the economy and invest them abroad; and setting aside some part of the revenues for future generations. Revenues from minerals (or the windfall part of them) can also provide reserves that can be used in countercyclical ways to limit the impacts of external shocks on national economies.

22. In many countries, lack of absorptive capacity of the economy has been identified as a major obstacle to a more sustainable use of revenues from minerals. Lack of capacity to spend by regional governments has been identified in Peru and is reflected in low execution rates of budgets related to the Canon Minero.[4] Local community priorities and government investment priorities are sometimes in tension. Inconsistency between national development plans and actual investments is a general concern. This results in some of the investments undertaken being either not useful or redundant. Improved information-sharing and cooperation between sectors and levels of government can help overcome these inconsistencies.[5]

[4] Propuesta Ciudadana, "Vigilancia de las industrias extractivas", Reporte Nacional No. 5 — Balance 2004-2006 (Lima, Perú, June 2007).

[5] United Nations Department of Economic and Social Affairs, "Using non-renewable resource revenues for sustainable local development", *Sustainable Development Innovation Briefs*, Issue 6 (New York, 2008).

23. Better addressing the environmental and social costs of extractive activities in host communities remains a critical challenge. Experts agree that in many countries, the compensations to host communities are insufficient to address local depletion of environmental assets and other social impacts of projects. In order to make a difference to development outcomes, revenues from natural resources need to be able to generate additional and sustainable incomes, beginning with replacing income sources or opportunities that have been destroyed by the mining activities, such as farming and fishing. Projects which create links between mineral extraction and the local economy are very important in that context.[6]

B. Artisanal and small-scale mining

24. It is widely recognized that the development of artisanal and small-scale mining is largely a product of poverty and lack of viable alternative livelihoods. Many issues related to artisanal and small-scale mining directly relate to its lack of status as a legitimate economic activity. Artisanal and small-scale mining often operates at the margin of or outside legality, with legal and regulatory framework for mining focusing largely on large-scale mining. Artisanal and small-scale mining activities are often not integrated into national development plans and recognized as a source of livelihoods for the local populations who rely on them. When they exist, official zonings of land allowed for artisanal and small-scale mining activities do not always correspond to where activities already take place or where they make economic sense. As a result, several issues are commonly related to artisanal and small-scale mining across the world, linked respectively with land rights disputes, adverse social and environmental impacts, and illegal markets.

25. Past international experience shows that attempts at integrating artisanal and small-scale mining into the formal economy should pay special attention to the economics of various mining activities in their local context. This comprises both upstream supply chains (for example, for inputs, legal or illegal) and downstream supply chains, from local sellers to intermediaries and end buyers. Actions focusing on miners alone have been shown to have limited success in reducing the use of illegal inputs, breaking cycles of indebtedness, reducing the monopoly power of buyers or limiting parallel trade.

26. Efforts to formalize the artisanal mining sector and integrate it into the formal economy should be based on lessons learned during the past decades. Actions that have been suggested by field research and policy research include:

(a) Enhancing national information and monitoring systems relating to small-scale mining, including areas affected; regular surveys of the health, income, livelihoods and economic conditions of concerned populations;

(b) Integrating artisanal and small-scale mining into broader local development strategies and poverty reduction policies in order to maximize the contribution of such activities to livelihoods, facilitate the cohabitation of mining activities with other sources of livelihoods, and, when appropriate, provide credible and viable alternative livelihoods to mining activities;

[6] Ibid.

(c) Building the legal and regulatory framework for artisanal and small-scale mining in a way that both recognizes its contributions to livelihood and tries to maximize its social benefits through legal recognition of small-scale mining activities; adequate zoning of land suited for artisanal and small-scale mining activities; facilitation of registration for miners; and provision of technical support to small mining communities;

(d) Recognizing land rights of communities and clarifying whether they are allowed to mine land that they consider theirs, and allocating exploration and production rights fairly among large- and small-scale mining;

(e) Putting in place appropriate institutions and frameworks for consultation at the local level in order to prevent and manage conflicts that can arise between small-scale mining and local activities which mining can affect negatively, especially agricultural activities.

27. Governments need to guide the development of artisanal and small-scale mining and create a sound environment for its operations. In some contexts, the expertise of the private sector can be used advantageously. There are examples of cooperation between large-scale mining companies and small-scale operations, where large-scale companies provide technical support and capacity-building. Governments can also reinforce the capacity of mining, as well as labour and environmental agencies, to enforce laws and regulations applying to mining operations in matters of child labour, labour safety, health safety, use of hazardous materials and environmental impacts, and provide these agencies with adequate resources to discharge these tasks in the specific context of artisanal and small-scale mining, including capacity-building for local mining communities. Other important domains where governments can play a role are the provision of adequate education, health facilities, security and access to basic services to the broader mining communities, with special attention to the situation of women, and devising policies to specifically address health and gender issues in mining communities, including HIV/AIDS and work-related health issues.

28. Among the most important environmental issues related to small-scale mining are the use of mercury for gold amalgamation, sometimes in combination with cyanide. International discussions on mercury are ongoing. With support from international institutions, governments should provide assistance to artisanal and small-scale mining operators to improve technologies and limit the adverse impacts of the use of mercury and cyanide, taking account of lessons learned through past initiatives, including:

(a) Designing comprehensive pollution abatement strategies that explicitly address local socio-economic capacities for improving environmental management;

(b) Proposing economical alternative techniques to the traditional use of mercury;

(c) Adapting technical solutions to local values or materials and designing the implementation of technical facilities (such as centralized mercury mills for gold amalgamation) with proper consideration of local demand and the local dynamics of the mining communities.

IV. Addressing the environmental and social impacts of mining

29. Environmental and social impacts associated with mining vary widely, depending on the type, scale and location of the activity. Since the World Summit on Sustainable Development, a number of good practices have been developed and shared, including on: good governance and sustainable mining principles; resource efficiency in extraction; mine safety and health; management of tailings and waste rocks; and rehabilitation of abandoned and orphaned mines.

30. Owing to the vulnerabilities of small island developing States, stemming in part from their limited carrying capacity and high dependency on marine and coastal resources, the carryover effects of mining to other sectors are particularly significant for this group of countries. Integrated approaches are needed that address mining together with fisheries, biodiversity, energy and shipping.

31. The existence and enforcement of appropriate mining and environmental laws and legislation is critical to addressing the environmental impacts of mining. Regulations should be adapted to the category of the mining operation (large- and small-scale mining). There is broad agreement that this should include the preparation of comprehensive environmental and social impact assessments, with the meaningful participation of the local stakeholder and community.

32. As mining operations continue to expand outside traditional mining countries, a key challenge is to ensure that industry best practices are disseminated and adopted as widely as possible. In parallel to the adoption of appropriate environmental and social laws and regulations, the implementation of voluntary standards and codes of conduct can potentially also raise the environmental and social performance of mining companies wherever they operate. Reporting, for instance through the adoption by firms of the Global Reporting Initiative's Mining and Metals Sector Supplement, can also contribute to an improvement.

A. Environmental impacts

33. Mining operations may have a range of environmental impacts, including land degradation, water pollution, air pollution and destruction of natural habitat. While some impacts are unavoidable once mining operations begin, damaging impacts can be minimized through the use of environmental impacts assessment, use of appropriate mining technologies, adherence to best practices in ongoing operations and careful post-closure management and monitoring.

34. The prevention and management of pollution from mines is usually covered in legislation. For example, the European Union's mining waste directive covers the management of waste from the mining industry. The Directive provides that operators must prevent water pollution, make available financial guarantees for restoring sites, and imposes duties to maintain and monitor disused sites.

35. Mining has implications for water consumption and water quality. Water use in mining is essential in all mining categories, ranging from hard rock, sand and gravel mining, to industrial mineral mining and coal mining. A strong focus on water management is needed to ensure that water is used efficiently and that discharges are managed. At the facility level, there should be site-specific pollution prevention plans supported by ground- and surface water monitoring. There is also greater

scope for the adoption of water conservation and efficiency and water recycling measures at many mining operations.

36. A major environmental problem relating to mining in many parts of the world is uncontrolled discharge of contaminated water from abandoned mines. Acid mine drainage is not only associated with surface and groundwater pollution, but it is also responsible for the degradation of soil quality, aquatic habitats and for allowing heavy metals to seep into the environment. Options available to limit acid mine drainage include prevention of direct contact of water with surface waste rock, through sealing with impermeable soil (clay) or plastic covers. One example of an innovative initiative to address acid mine contaminated water is the Emalahleni Water Reclamation Project, which is a public-private partnership jointly undertaken by Anglo Coal (South Africa), BHP Billiton Energy Coal South Africa, and the Emalahleni local municipality. The plant desalinates rising underground water from collieries, preventing polluted mine water from decanting into the environment and the local river system, augmenting the water supply of the local government.[7] So-called passive mine water treatment facilities relying mostly on enhanced natural attenuation have been promoted by UNEP in the Western Balkans at abandoned mining sites with limited but continuous discharges of acid mine drainage.

37. Cyanide, which is acutely toxic to humans, is used in the mining industry to extract gold and silver from ore. An initiative to improve the management and use of cyanide is the International Cyanide Management Code, a voluntary programme for gold mining companies, cyanide producers and transporters, which focuses on the safe management of cyanide and cyanidation in vats or tanks. The Code was developed by a multi-stakeholder steering committee under the guidance of UNEP and the then International Council on Metals and the Environment, now the International Council on Mining and Minerals.

38. The disposal of tailings from mining has been a pervasive cause of environmental damage. Riverine tailings disposal has been criticized as a source of destruction of ecosystems and pollution of water sources. Submarine tailings disposal is banned under the Clean Water Act in the United States, but is used in a number of countries. Tailings dams typically represent a significant environmental liability associated with mining operations. The failure of such impoundments represents serious risks to the environment and human health, and involves very costly clean-up operations. Many jurisdictions have developed standards and guidelines for the operation of tailings dams and facilities, focusing increasingly on a risk management approach. The International Commission on Large Dams has also developed guidelines for tailings dams.

39. Mine closure and rehabilitation activities need to be planned from the inception of and undertaken throughout the operation of a mine. Mandatory insurance requirements or mitigation fees for mining companies may help reduce environmental risk exposure for governments. In this regard, many jurisdictions now require companies to provide guarantees or establish funds for mine closure, also referred to as reclamation funds prior to a mine opening.[8] For example, in

[7] See World Coal Institute case study, available from http://www.worldcoal.org/resources/case-studies/emalahleni-water-reclamation-plant/.

[8] Wanda M. A. Hoskin, "Mine Closure — The 21st Century Approach: Avoiding Future Abandoned Mines", Centre for Energy, Petroleum and Mineral Law and Policy Internet Journal Vol. 12: Article 10 (available from http://www.dundee.ac.uk/cepmlp/journal/html/vol12/article12-10.html).

South Africa, the Mineral and Petroleum Resources Development Act 28 of 2002 provides that a company must establish a financial provision, usually in the form of a rehabilitation fund or bank guarantees, before the mandatory environmental management plan can be approved. When individual insurance is not feasible, mitigation fees financing an insurance pool could be an alternative to limit public risk exposure.

40. In many countries the legacy of abandoned or partially rehabilitated mines is a significant issue. In many cases governments are saddled with the cost of remediation and rehabilitation. A key problem is that in most countries, existing legislation does not address this issue. As a consequence, there is a lack of established procedures for remediation, and potential legal liabilities discourage companies that may wish to work on the site from doing so. Along with clear liability provisions, mandatory mine closure and monitoring plans may help limit this risk. An essential first step is the identification, assessment and inventorying of sites, in order, including prioritization in accordance with risk levels, in a transparent process with stakeholder involvement.

41. Uranium mining gives rise to radioactive waste from all stages of mining and milling processes and includes, in addition to mill tailings, waste rock, mineralized waste rock and process water, including leaching solutions. Mining and milling remove potentially hazardous constituents in the ore and convert them into forms such as sand and sludge, which are more susceptible to dispersion in the environment. Particular attention to airborne dust and groundwater pollution is required, especially when communities are sited close to active or closed mining sites. In this regard, abandoned mine sites represent a particular problem and should be prioritized accordingly for remediation.

42. Establishing and enforcing clear rules for biodiversity protection in relation to mining, including appropriate zoning of areas where mining activities are permitted, remains elusive in many countries. Although global and national policy debates often centre on "no go" areas on land that is already subject to legal protection, mining in important ecosystems that are not adequately protected may pose an even greater threat. NGOs have developed general principles and criteria for identifying areas that should be off-limits to mining, oil and gas development. However, they are not always implemented.

B. Social impacts

43. There have been increased calls from civil society, and more recently from institutional investors, for mining companies to respect human rights instruments, the International Labour Organization (ILO) Convention concerning Indigenous and Tribal Peoples in Independent Countries (Convention No. 169) and other ILO conventions, as well as other instruments, such as the United Nations Declaration on the Rights of Indigenous Peoples. There has also been a focus on the need to apply the principle of free, prior and informed consent, as the absence of (or merely pro forma) consultation with local and indigenous communities on decisions to start and operate mining activities has remained a pervasive issue and has been a source of conflicts. Lack of information for local populations on mining projects is also a crucial gap. Among the complaints received by the International Finance Corporation regarding mining projects that they finance, the most frequent causes

for the complaints are: (i) absence of information on the project; (ii) land issues; and (iii) water issues.[9]

44. Displacement arising from mining operations may result in serious social problems, including marginalization, food insecurity, loss of access to common resources and public services, and social breakdown. In this context, decision-making, including issuance of prospecting licences, should be transparent, and local stakeholders should have the right to be heard.

45. Permanent consultation between companies and local communities during operations is recognized as best practice. Putting in place adequate and effective mechanisms to do so has often been a challenge. The Minerals Council of Australia, in partnership with the University of Queensland, is developing a postgraduate programme aimed at improving the skills of community relations practitioners in the minerals industry, specifically in community engagement, community development, corporate social responsibility and cultural awareness.

46. Women provide up to 50 per cent of the small-scale mining workforce, but their compensation typically lags behind that of male mine workers. Women in communities affected by mining also tend to bear most of the down sides of mining activities. This strongly suggests that a gender-sensitive approach to mining projects should be followed in social evaluations and social projects centred on host communities. Work by the World Bank provides recommendations in this regard, as well as a list of indicators that can be used to monitor this dimension in mining projects.[10]

47. A large number of children work in artisanal and small-scale mining. The call by ILO in 2005 for action against child labour in small-scale mining advocated for immediate steps to withdraw children from mines and their immediate surroundings. Experience from a pilot project in Peru under the ILO International Programme on the Elimination of Child Labour demonstrated that a number of steps could be applied to remove children from artisanal and small-scale mining. These include sensitization at the national and regional levels among decision makers, access to improved technology that eliminates the need for child labour, and improvements in basic services.

48. Improving the health and safety of mine workers remains a challenge across the world. To date, 23 countries have ratified the ILO Convention concerning Safety and Health in Mines (Convention No. 176). Given that this Convention provides a framework to achieve continuous and sustainable occupational safety and health improvements, its ratification could improve laws and regulations in those countries where mine safety is weak and where no coherent occupational safety and health policy exists for the sector. It is also important that countries take steps to fairly compensate the long-term health impacts on workers and nearby communities. Improving working conditions in the artisanal and small-scale mining sector will

[9] See communication by Meg Taylor, Vice President, Compliance Adviser/Ombudsman, International Finance Corporation, at the fifth Columbia International Investment Conference: "Extractive Industries and Sustainable Development: the Challenges of Implementation", held in New York, 27-28 October 2010.

[10] *Mining for Equity: Gender Dimensions of the Extractive Industries*, Extractive Industries and Development series #8, World Bank (Washington, D.C., 2009).

remain a challenge, as it operates largely informally with minimum work safety and health standards.

49. The influx of persons associated with mining operations may also give rise to, or exacerbate, indirect negative social impacts, such as alcoholism, prostitution and sexually transmitted diseases, including HIV/AIDS. Social and health policy interventions are required by mining companies and local authorities.

50. The social side has been dubbed the "weakest pillar" of sustainability assessment by some experts. Social impact assessments are often mandated by law and regulation for all proposed mining projects. While the goal of such assessments is to identify and address potential social issues proactively, a number of weaknesses of this and related instruments have been identified. They include: insufficient scope; lack of comprehensive approach addressing all relevant issues; lack of integration of social, environmental and economic issues; an overly technocratic approach; and the static nature of these exercises. The demand for greater integration of social and environmental impact assessments is supported by the World Bank Extractive Industries Review, among others.

V. Improving governance in the mining sector

51. Mining activities generate a range of impacts that have been examined in the report of the Secretary-General to the Commission at its eighteenth session. Depending on the case, preventing, managing or mitigating those impacts requires adequate governance at both the national and international levels, including the rule of law, as well as ethical, accountable and transparent behaviour by governments and companies, within the respect for national sovereignty over the control of national resources, as stated in Principle 21 of the Stockholm Declaration and reaffirmed in 1992 by Principle 2 of the Rio Declaration on Environment and Development.[11]

52. International governance issues arise because of the globalized nature of markets and value chains involving minerals and metals. Adequate governance should aim at greater transparency and accountability at all points of such supply chains, with the aim to support interactions among all the actors in ways that are conducive to sustainable development. A comprehensive approach to governance in the sector has to consider in particular the following aspects, which can be adequately addressed by a combination of national and international efforts: (a) trade in conflict minerals; (b) transparency of agreements between governments and the private sector; (c) respect by the mining industry of basic human rights, including the rights of affected communities; and (d) environmental and social performance of international companies.

A. Continuing to progress on international governance

53. Mining activities in countries suffering from conflict or where a serious risk of conflict exists have often been detrimental to sustainable development. So-called

[11] *Report of the United Nations Conference on Environment and Development, Rio de Janeiro, 3-14 June 1992* (United Nations publication, Sales No. E.93.I.8 and corrigenda), vol. I: *Resolutions adopted by the Conference*, resolution 1, annex II.

"conflict minerals" have been documented to stoke conflicts, increase crime and corruption, and hinder economic and social development. Under the appropriate forums, all countries should cooperate among themselves and with mining companies to end trade in conflict minerals. Options that can be considered include:

(a) Assessing the need for further consideration of the recommendations of the World Bank's Extractive Industry Review regarding investments by international financing institutions in mining activities in countries affected by conflict;

(b) Requiring companies to adopt appropriate international standards and follow international guidelines, such as the OECD Guidelines for Multinational Enterprises;

(c) Endorsing systems for the responsible sourcing of minerals, such as the OECD Due Diligence Guidance for Responsible Supply Chain Management of Minerals from Conflict-Affected and High-Risk Areas, including traceability systems;

(d) Providing technical and financial support to countries willing to implement mechanisms aimed at fighting illegal trade in conflict minerals, such as the Kimberley Process Certification Scheme.

54. Transparency over the revenues flowing from companies to governments is believed to be a critical first step to better accountability and better use of minerals revenues for sustainable development. Rapid change has taken place in this domain since 2002, with the development of the Extractive Industries Transparency Initiative, the Kimberley Process and the Publish What You Pay Campaign under the influence of civil society organizations. A total of 33 countries have now signed up to the Extractive Industries Transparency Initiative. International financing institutions and other development partners should consider supporting countries willing to implement existing transparency schemes with adequate capacity-building and training, and promote the exchange of best practices between countries at different levels of implementation.

55. Transparency and accountability on payments from companies to governments and on human right issues are increasingly becoming a requirement from investors, and this has the potential to change the dynamics in which mining companies operate. The recently passed Cardin-Lugar amendment in the United States, which imposes reporting requirements at the project level on payments made to governments by extractive companies listed on the New York Stock Exchange, is but one example of the drive towards more transparency. However, the type of financial flows falling under the scope of the Extractive Industries Transparency Initiative and other reporting instruments is still limited. In the longer run, many experts advocate more transparent and comprehensive accounting standards that would allow for easier disclosure of various types of payments made by firms. Much room for progress remains, as documented for example by a recent study by Revenue Watch.[12]

[12] 2010 Revenue Watch Index, Transparency: Governments and the oil, gas and mining industries, Revenue Watch Institute: Out of the 41 countries analysed in the study, 5 make public the contracts signed with companies, and 15 actively disseminate environmental and social impact study reports. The study also found that some of the countries that signed up to the Extractive Industries Transparency Initiative are among the least transparent regarding the activities of extractive industries operating on their soil.

56. International financing institutions have started to promote transparency and accountability at other points of the value chain, in particular through increased standards for environmental and social performance of mining companies. A number of financial and capital institutions have also adopted principles (the Equator principles), inspired in part from the performance standards of the International Finance Corporation. The international community should consider how to further promote the adoption of principles to guide investments in mining, including through:

(a) Ensuring that international financing institutions finance only those mining projects that respect best practice environmental and social standards, and continuing to improve those standards;

(b) Finding ways to ensure that the principles adhered to are followed in actual projects, for example by regular third-party assessments;

(c) Continuing to promote adequate disclosure of information on all mining projects financed by international financing institutions;

(d) Assessing the needs in terms of adequate disclosure of information relating to mining projects financed by the private sector, e.g. environmental and social impact assessments.

B. Fostering improved performance by the mining industry

57. In the years since the World Summit on Sustainable Development, private sector governance in the mining sector has improved. There has been a multiplication of voluntary guidelines, voluntary principles — both broad-based and on specific issues such as worker safety and engagement with local communities, developed by the industry and other stakeholders. Principles and guidelines of the International Council on Mining and Minerals, the Natural Resource Charter, and the policy framework recently put forward by the Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development are examples. Another area where changes have occurred rapidly is that of reporting. Many large companies now subscribe to the Global Reporting Initiative standards, and others have chosen to embrace other standards. Sustainability reports have become more and more common. While much more is needed, the trend is encouraging.

58. Governments can directly impact the performance of mining companies by:

(a) Adopting and enforcing environmental and social regulations for mining;

(b) Ensuring that companies involved in human rights abuses or that are failing in their environmental and social obligations are held accountable to the legal system;

(c) Requiring that multinational companies operating in the country apply best-practice technologies, or at least apply the same technologies consistently across operations worldwide;

(d) Requiring that their domestic financial institutions apply relevant sustainability criteria and safeguards to mining project finance;

(e) Requiring from mining companies listed domestically to disclose relevant corporate information in their yearly reports, in a way similar to what is being put in place in the United States;

(f) Establishing national dialogues between companies and the government in order to foster the adoption by companies of best practices in the areas of resource efficiency, environmental and social impact assessments, human rights, participation of local communities, and local community development.

59. Companies should ensure that corporate social responsibility activities undertaken by them are fully compatible with and reinforce national sustainable development objectives, actions and policies relevant to the areas where they operate. Governments have a variety of options at their disposal to ensure such coordination. These include: introducing nationally adapted frameworks for corporate social responsibility engagement by mining companies; monitoring corporate social responsibility activities undertaken by mining companies; promoting the adoption of corporate codes of conducts, such as the OECD guidelines or the corporate social responsibility strategy for the Canadian mining sector operating abroad; and supporting NGOs that provide independent, third-party evaluation of the corporate social responsibility performance of mining companies.

60. Civil society and the international community could support enhanced corporate performance in the mining sector by:

(a) Continuing to support greater transparency of the mining sector, including broader disclosure of information on mining projects to the general public and affected communities, transparency over revenues and their allocation, and companies' performance;

(b) Continuing to document and evaluate the performance of the industry and disseminating the results thereof to the broader public;

(c) Promoting the adoption by individual companies of voluntary standards and best practices, many of which have been compiled over the last decade;

(d) Promoting third-party certification schemes that address environmental and social issues associated with the mining of gold and precious stones;

(e) Requiring corporate social responsibility and sustainability reports from companies;

(f) Helping local communities to build capacity, and in particular supporting capacity-building in the artisanal and small-scale mining sector.

C. Improving national governance

61. Parallel to improvements in transparency at the international level, transparency and accountability of governments to their population regarding the exploitation of natural resources, the revenues they generate, and the redistribution of such revenues is also a prerequisite for sustainable development.

62. Features of good practices with respect to mining licences include the following: efficient systems for the management of information related to mining; clear and transparent processes; objective criteria for the grant of exploration and mining licences; and limited administrative discretion. As an example of

transparency, the Namibian Department of Minerals and Energy operates a Computerized Title Management System, which covers all transactions throughout the lifetime of a mineral title and permits access by members of the public.

63. Options at the national level to increase transparency regarding the contracts between governments and mining companies include:

(a) Adopting internationally promoted codes of transparency such as the Extractive Industries Transparency Initiative and the Kimberley Process Certification Scheme;

(b) Increasing the disclosure of exploration and production contracts signed between governments and companies by making public an agreed set of variables relating to these investments;

(c) Making available to various levels and branches of government and the general public the tax regime applicable to mining activities as well as conditions applying to specific investment projects (e.g., tax exemptions);

(d) Producing and disseminating budget information, including at the local level.

One way to support these objectives is through the passing of legislation guaranteeing freedom of information.

64. Transparency over the allocation and use of revenues can be enhanced by:

(a) Inscribing them in the law in adequate frameworks;

(b) Ensuring that the allocation rules are enforced and that information on how they should be received is made available to local and subnational levels of government on a regular basis;

(c) Providing for legal channels to oversee and supervise the use of revenues;

(d) Providing effective feedback mechanisms to local communities and regions as well as at the national level in order to convey priorities and needs and evaluate and report on the effectiveness of the use of revenues;

(e) Developing adequate communication mechanisms between institutions involved in revenue management at different levels and promoting communication between institutions;

(f) Developing local capacities to manage revenues.

65. Governments can enhance the local contribution of mining to sustainable development by:

(a) Recognizing the land rights of communities, including indigenous peoples, and ensuring access of local communities to the legal and administrative system relating to land rights;

(b) Creating and enforcing a legal framework conducive to meaningful participation of local communities and disadvantaged groups in decision-making relating to mining;

(c) Encouraging NGOs to build the capacity of local communities to know their rights and engage with mining companies during project implementation.

(d) Providing and implementing legal recourse systems for affected communities, in addition to encouraging direct settlement mechanisms between companies and the affected communities.

66. Many experts consider that in order to improve governance in the sector, the issue of conflicts of interests in government and regulatory agencies should be given serious consideration. The fact that trained personnel from government departments have the opportunity to join more lucrative positions in the industry when they leave public service has been noted as a source of corruption and conflicts of interests in developed and developing countries alike. The negative impacts of this effect can be more pronounced where capacity is already limited in government.

VI. Building and reinforcing national capacities

67. The issue of adequate capacity of governments cuts across the whole life cycle of mining operations. In many countries, including developed countries, the existence of gaps in government capacity has been identified as one of the main obstacles to achieving more favourable outcomes. Governments need to build capacity to survey their mineral resources, to deal with companies on a fair basis, to design laws and regulations in the mining sector, to enforce environmental and social regulations, to monitor the economic, social and environmental impacts of mining activities, and to manage the revenues that accrue from mining.

68. More broadly, but perhaps even more importantly, governments also need to be able to design and implement development plans in order to fully use mining activities and mineral wealth to create wealth in other sectors that will survive mine closure. This includes building strong backward and forward linkages between mining activities and the rest of the economy. In many countries, this supposes reinforcing institutions able to elaborate such plans.

69. A first area where needs have been identified is the need to reinforce the technical, legal and fiscal capacities of government officials, with a view to improving the capacity of governments to negotiate fair deals with multinational companies. The international community could support this goal. One option could be the creation of a critical mass of specialized experts which could be shared, for example at the regional level. NGOs could provide support to small countries lacking adequate resources to train enough personnel. In a more general sense, there is a need to develop the broader capacity of national legal and administrative systems to monitor and oversee large-scale investment contracts.

70. Building the institutional capacity to manage mineral revenues, including at subnational levels when applicable, is also critical. International cooperation already exists in this domain. For example, the Oil For Development Institute of Norway provides advice and capacity-building on macroeconomic management of revenues from extractive industries.

71. Adequate capacities should exist at the national and subnational levels of government for enforcing laws and regulations relating to health, working safety and the environment. Capacity to evaluate environmental and social impact assessments and to monitor them at later stages of projects has to be reinforced. It is also important to provide enforcement personnel with adequate compensation in order to avoid depletion of agency staff. In many countries, there is need for

strengthening the capacities of local and national governments for the safe management and disposal of waste produced by the mining sector.

72. There is scope for international institutions, as well as bilateral, regional or subregional cooperation, to provide support to governments, in particular in the following areas:

(a) Identification and survey of national mineral resources;

(b) Provision of training and capacity-building for mine closure and rehabilitation;

(c) Technical assistance and training to help countries build capacity to effectively comply with the Extractive Industries Transparency Initiative and other transparency initiatives, in areas related to monitoring mining and trade activities, enforcement, fighting smuggling and illegal trading networks for diamonds and gold;

(d) Support to draft legislation relating to mining codes, including for artisanal and small-scale mining; transposing ILO core conventions and other international instruments into national legislation; and environmental legislation applying to mining activities, including integrated environmental and social assessments.

VII. The way forward

73. As examined in the present report, a number of sweeping changes have taken place in the mining sector since the World Summit on Sustainable Development in 2002. Progress has been achieved on transparency and good governance of the sector. Many major companies have embraced progressive voluntary guidelines and principles as a framework for their operations, while pursuing resource efficiency improvements. Standards being adopted by the financial sector and capital markets have the potential to contribute to greater transparency and to help ensure that the welfare of populations affected by mining operations are given due concern.

74. This progress in different areas should not mask the remaining gaps. Many countries could probably enhance the contribution of their mineral wealth to their national economies. Steps remain to be taken towards increased transparency from governments to citizens on mining activities and the revenues they generate. Information disclosure, respect of human rights, land rights and livelihoods of local and indigenous communities, environmental and social impacts of mining activities and, more generally, relations among governments, companies and citizens are also areas in which further progress is needed. In all this, addressing inadequate capacity in national governments is critical.

75. The challenge for the international community is to find adequate ways to help countries make the most of their mineral wealth. This can be achieved through technical cooperation; through exchange of good practices; and through the pursuit of international initiatives on transparency. During the discussions at the eighteenth session of the Commission on Sustainable Development, a global initiative for sustainable mining was proposed for consideration, encompassing such areas as facilitating policy dialogue, defining product standards, promoting responsible behaviour and transparency, and encouraging greater resource efficiency and

recycling. Also mentioned at the session were: international cooperation to advance measures to strengthen governance, transparency and public accountability; building technical and managerial capacities; developing new mining technology; promoting investment and technology transfer; and ensuring rehabilitation and benefit-sharing.